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A NEW THEORY OF THE ORIGIN OF SPECIES.* — We have here an essay illustrative of the general principle, that confidence in the discussion of great problems of modern science is in inverse ratio to a knowledge of details. The author has undertaken as his first work to handle the most difficult of scientific problems, commencing at the top instead of the bottom of the scale of work which the student must pursue in order to reach conclusions which rest on a solid basis. The result is naturally a production scientifically worthless. His theory, that each new specific form is produced from the matrix of a preëxistent species by supernatural creative power, is only a form of the old belief in distinct creations, and is not a developmental theory in any sense. He produces no evidence in support of it; in fact, he does not appear to know what scientific evidence is. This further appears in the inconsistency of his belief in the development of species by descent. In evidence of this he cites the arguments adduced by some well known European authors, with reference to the succession from less to more perfect, exhibited by classification and palæontology. With the works of American scientists he appears to have little or no acquaintance. Occasionally, novel and erroneous statements are made; *e. g.*, “The Ichthyosaur is between the predaceous fishes and the crocodile!” “In this era the fierce Saurians make their appearance in the *Megalichthys hibbertii*!” Trilobites are defined as “a three lobed animal, in general figure something like the wood-louse.” The *Mosasaaurus* “a huge reptile twenty-five feet long” is referred to the *Eocene* formation (!) and is said to be “intermediate between the *monitor* and the *Iguana*.” A slight knowledge of American palæontology would have prevented such blunders. The early part of the paper is occupied by arguments of the popular sort against descent by generation. He lays especial stress on the size of the human brain as compared with that of the apes, forgetting that the canary’s brain is relatively still larger than that of man.

The author expresses himself clearly and distinctly, and we hope that his pen may in future find abundant occupation in relating his studies into the structure, embryology, and other details of biology, which are essential to the discovery of the laws of creation. In this we prophesy for him success. As it is, he is now evidently

* A New Theory of the Origin of Species. By B. G. Ferris, New Haven, Conn. Chas. C. Chatfield & Co.

a book zoologist. Work in the shop (which we hope he will undertake) will correct his views and give him a place among his friends, American zoologists. In the meantime let him look up the orthography of the words carnivorous and herbivorous. — E. D. C.

BOTANY.

CULTIVATION OF CALIFORNIA ROOTS AND BULBS. — In a climate like ours, clearly discriminated by a wet and long dry season, we find these bulbs located say about six to ten inches deep; the vital fibres, or true roots, shoot downwards ten inches to a foot below this point, in search of food and moisture: thus radiating from the leading germinal end of mostly oblong scaly bulbs — the respectively dormant fibres that have “closed in” serving as stays, etc. Is it not evident, then, that such bulbs require a flower pot at least eighteen inches deep? Hence, ordinary pots must be *utterly useless*, cramping the plant, or inadequate to meet its primary natural indications. Let any one take an improvised five-gallon kerosene or alcohol tin can, or the like, which is good enough, not to say the best, cut out one end and nail narrow slats around the upper margin to add symmetry, avoid unsightly dents, and for convenience in handling; and if one slat is dressed, paint the name, to avoid annoyance of displayed labels; paint rudely inside and out, to preserve; punch say at least three large holes in the bottom; plant, as in nature, in any good soil well composted, and set your can, keg or crock, *in a shallow pan of water*. You will soon have the pleasure of seeing a stout stem, of the size of your thumb, rising up and “rejoicing as a strong man to run a race,” and flowering gorgeously. Let it generally be observed here, once for all, that in California *underground* irrigation, or water supply from beneath, is the requisite rule or law to be observed, especially in their advanced stage of growth. Many California plants are not only injured but killed outright by spraying beneath our California sun. To illustrate these principles, let us take a few other examples, to show that if a plant spends its vital force searching for requisite food or moisture; or, if the law of supply be reversed, efforts balked, or attained at too great an expenditure, little or nothing else can be accomplished. *Abronia arenaria*, as the specific name indicates, grows in sand. If found on deep sand-drifts of the bay shore of San Francisco, or inland, it shoots down a stout fusiform